DocuMaster™ 210 HiSpeed 20ppm Scanner with PP9.0/TextBridge OCR/AVScan AV210 User's Manual

Ambir Technology

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This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Any changes or modifications not expressly approved by the manufacture of this device could void the user's authority to operate the equipment.

EC Declaration of Conformity

According to EN45014

Manufacturer's Name:	Ambir Technology
Manufacturer's Address:	650 West Grand Ave Suite 107 Elmhurst IL 60126 USA

declare that the product

Model Number :	AV210

conforms to the following Product Specifications:

Emission:	EN 50081-1 (1992) EN 55022 (Class B) (Conducted Radiated) (1994) EN 60555-2 (Harmonics) (1987) EN 60555-3 (Flicker) (1987)
Immunity:	EN50082-1 (1992) IEC 1000-4-2 (ESD) (1995) IEC 1000-4-3 (RS) (1995) IEC 1000-4-4 (EFT/Burst) (1995) IEC 1000-4-5 (SURGE) (1995)

System Requirements

Windows

- IBM compatible PC Pentium III 600 or higher
- Microsoft Windows 98 / 98SE / Me / 2000 / XP
- USB port (Hi-Speed with USB 2.0 card only) (Compatible with USB 1.1)
- At least 100 MB of free hard disk space
- At least 128 MB of system memory
- A CD-ROM drive

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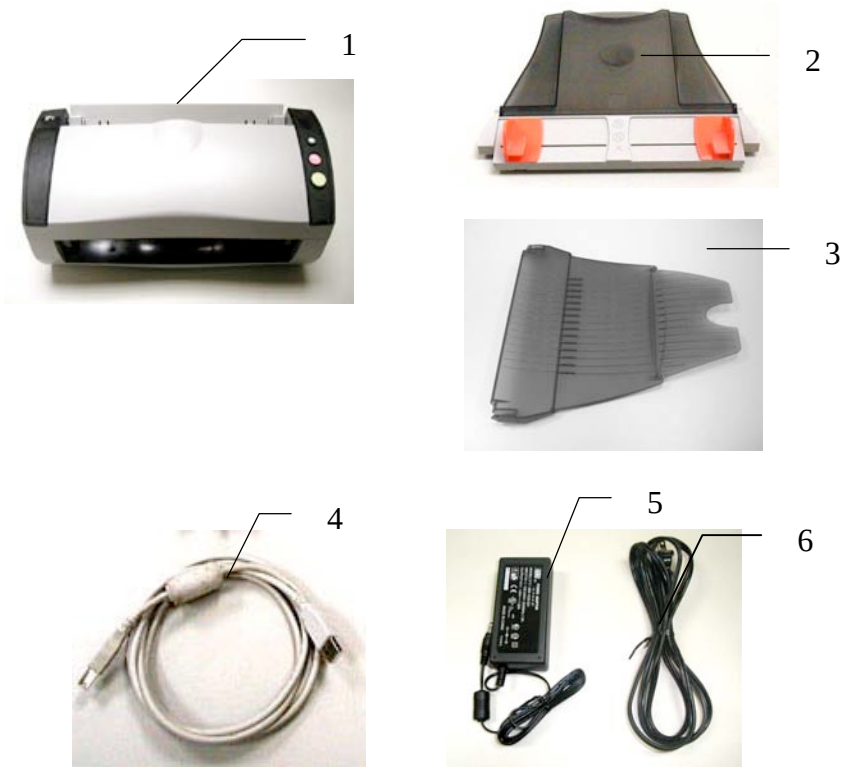
1. Introduction

Congratulations on your purchase of the AV220-D9 color sheet-fed image scanner. Ambir Technology is one of the leading companies in the world to develop high performance sheet-fed scanners. With this scanner, you can quickly scan two-sided paper documents to effectively increase your productivity.

Before you install and operate the new scanner, please take a few minutes to read through this manual. It provides proper instructions for you to unpack, install, operate and maintain the scanner.

The following figure indicates the package contents. Please check all the items against your checklist. If you do not receive all the items, please contact your authorized local dealer immediately.



1. AV220 Main Unit
2. ADF Paper Tray
3. Flatbed Paper Tray
4. USB Cable
5. Power Adapter
6. Power Cord

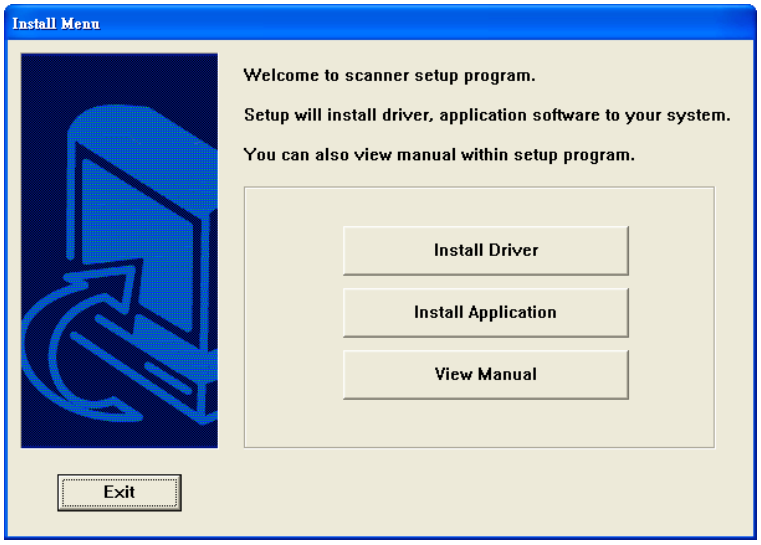
Note:

1. *Only use the AC adapter (SA60-24 made by Sino-America) included in the machine. Using other AC adapters may damage the machine and void the warranty.*
2. *Please unpack the packing carefully, and check the contents against the checklist. If any items are missing or damaged, please contact your dealer immediately.*

2. Software Installation

2.1 Installing the CD Software

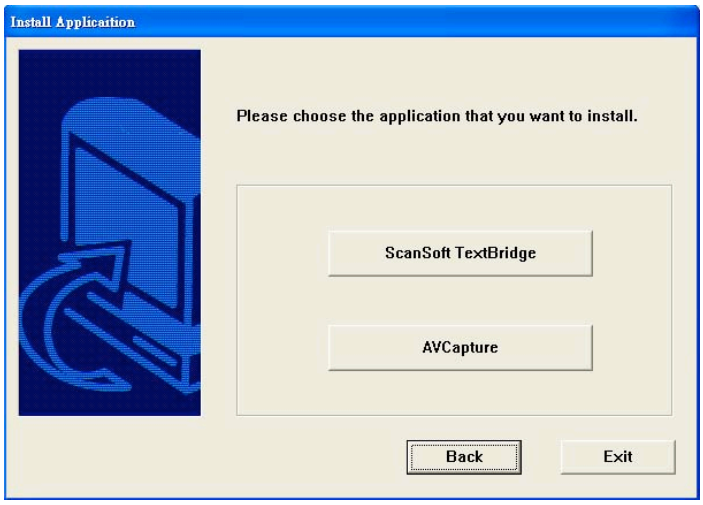
1. Insert the supplied CD into your CD-ROM. The installation menu appears, as shown below.



Note: If the Installation menu fails to appear, an alternative method is to click the Start button on the task bar, choose Run, and type "d:\cdsetup.exe" (D: your CD-ROM drive in use) and click O.K.

2. Click “Install Driver” to install the TWAIN or ISIS driver.

3. Click “Install Application” to install all application software.



4. Follow the on-screen instructions to install applications respectively.

5. Restart the PC after installing all software applications

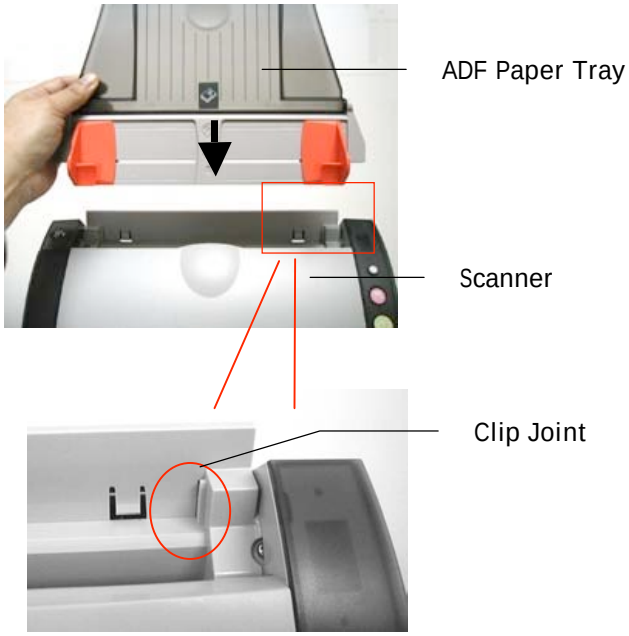
3. Scanner Installation

Precautions

- Keep the scanner out of direct sunlight. Direct exposure to the sun or excessive heat may cause damage to the unit.
- Do not install the scanner in a humid or dusty place.
- Be sure to use the proper AC power source.
- Place the scanner securely on an even, flat surface. Tilted or uneven surfaces may cause mechanical or paper-feeding problems.
- Retain the scanner box and packing materials for shipping purposes.

3.1 Installing the ADF Paper Tray

1. Attach the ADF Paper Tray to the clip joint of the scanner as indicated below. You will hear a snap-in sound.



3.2 Installing the ADF Output Paper Tray

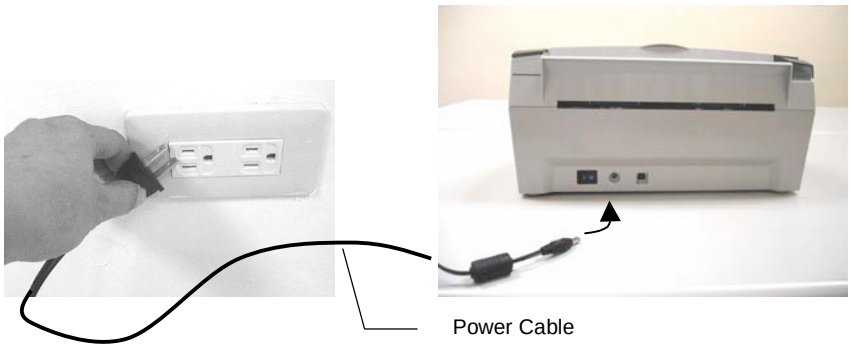
1. Hold the Output paper tray some 30 degrees as shown in below.
2. Insert the right protrusion of the Output Paper Tray into the hole on the front of the scanner.
3. Insert the left protrusion of the Output Paper Tray slightly into the hole on the front of the scanner.

3.3 Connecting the Cables

Make sure the power of scanner is off.

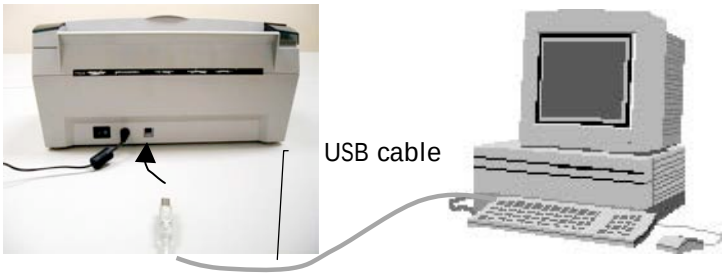
3.3.1 Connecting to Power

Plug the small end of the power adaptor into the power jack of your scanner. Insert the other end to an appropriate power outlet.



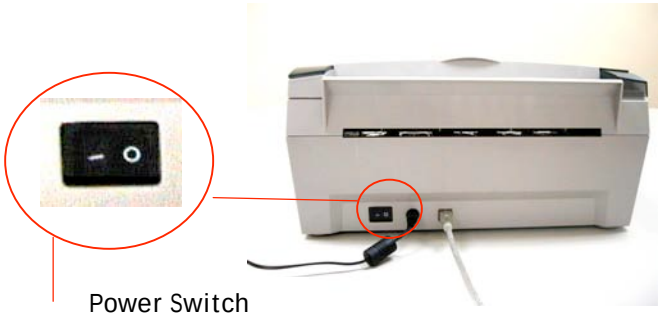
3.3.2 Connecting to Computer

1. Connect the square end of the USB cable to the USB port of your scanner. Connect the rectangle end to the USB port of your computer.



3.3.3 Turning on the Power

1. After the power cable and the USB cable have been connected, press the power switch to the "I" position to turn on the scanner. To turn off the scanner, please press the power switch to the "O" position.



2. The computer should detect a new USB device and prompt a "New Hardware Found" message.

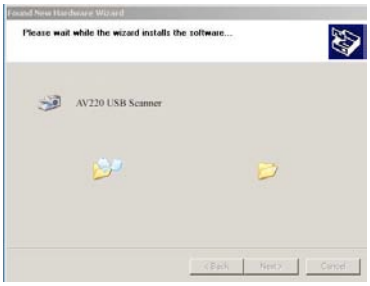
(Windows 9X/Windows ME)

(Windows 2000/XP)

3. In Windows 9X or Windows ME, confirm that the "Search for a better driver." is selected and click the "Next" button.

Add New Hardware Wizard
Windows has found the following new hardware:
USB Scanner
Windows can automatically search for and install software that supports your hardware. If your hardware came with installation media, insert it now and click Next.
What would you like to do?
Automatic search for a better driver (Recommended)
Specify the location of the driver (Advanced)
< Back
Next >
Cancel

In Windows XP, click the Next button to continue.



4. During the process, the Windows XP certification screen will appear. Ignore the contents and choose "Continue Anyway" to complete the installation.

Hardware Installation
The software you are installing for this hardware:
AVision AV220
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

5. When the Finish dialog is prompted, click the Finish button.

Add New Hardware Wizard
AV220 USB Scanner
Windows has finished installing the software that your new hardware device requires.
Finish
Cancel

(Windows 9X/Windows ME)

(Windows 2000/XP)

4. Completing Your First Scan

4.1 Loading Your Paper

4.1.1 Notice on Using the ADF

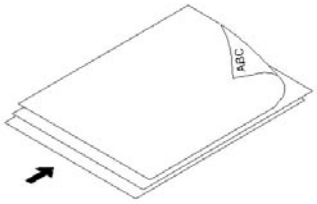
Before using the ADF, please make sure that your paper meets the following specifications:

- Document(s) can range in size from 3.5 by 2 inches to 8.5 by 14 inches (Legal).
- Document(s) can range in weight from 16 to 28 lbs
- Document(s) should be square or rectangular and in good condition (not fragile or worn).
- Document(s) should be free of curl, wrinkle, tears, wet ink, or punch holes.
- Document(s) should be free of staples, paper clips, paper sticky notes.

4.1.2 Placing Your Document in the ADF Paper Tray

Fanning Your Document

Standard paper size should feed easily through the scanner. To avoid occasional paper jam when automatically feeding multiple documents, loosen the paper before loading.



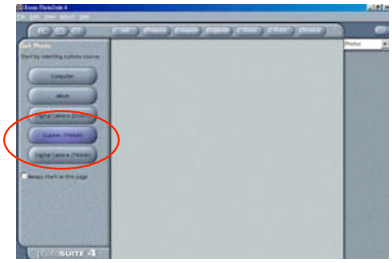
Document feeding

Place your document with the text face down on the ADF Paper Tray. Align the two sides of the document with the slide guides. Please note that the ADF Paper Tray can hold up to 20-page document at a time.

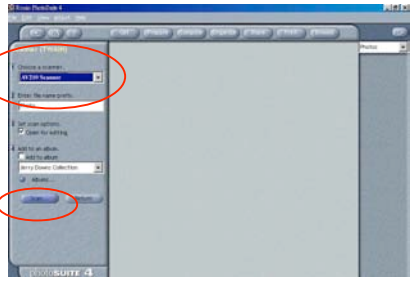
4.2 Scanning with image editing software

The scanner driver is not a stand-alone program, it has to be started from within a TWAIN-compliant or plug-in software application and then the scanner driver is able to scan and load the image to your computer. The command to start the scanner driver may vary due to different software applications.

1. Start a TWAIN compliant software application such as Roxio PhotoSuite 4 SE which is bundled in the CD.
2. Click Get>Scanner (TWAIN).



3. Choose AV220 as your scanning source. (You only need to do this once.)

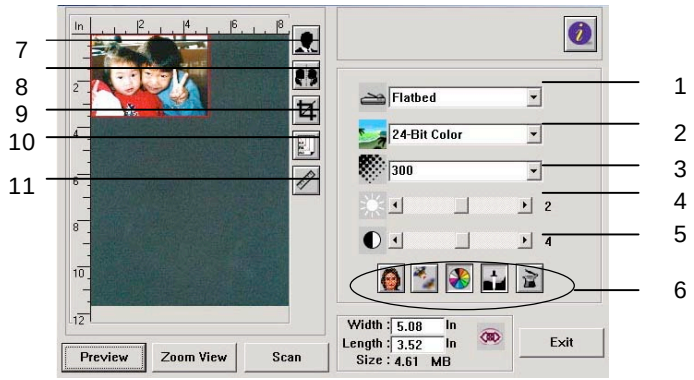


4. Place the document FACE DOWN on the document glass.
5. Click the Scan button to prompt the TWAIN user interface.
6. Click Preview to get an initial scan of your document. Allocate your scanned area and choose Scan button to scan the document.

7. Click Exit to return to the main screen and click Open Library and Photos at the upper-right corner to open your scanned image.

1. Preview
2. Zoom View
3. Scan
4. Exit
5. Photos

4.2.1 A Glance of the user interface



1. Original Source	Choice: ADF/Multipage
2. Image Type	Choice: Black & White, Halftone, 8-bit Gray, 8-bit Color, 24-bit Color.
3. Resolution	Choice: 50, 72, 100, 144, 150, 200, 300, 600, 1200 (dpi).
4. Brightness:	Adjust the brightness level from –100 to +100.
5. Contrast	Adjust the contrast level from –100 to +100.
6. Further Tools	Descreen, Sharpen, Color Adjustment, Auto Level , Advanced Settings (From left to right).
7. Invert	Reverse the color of your scanned image.
8. Mirror Function	Flap your image.
9. Crop	Resize your scanned area.
10. Paper Size	Select your paper size from Card 4"x2.5", Photo 5"x3", Photo 6"x4", A5, B5, A4, Letter, Legal, or scanner maximum.
11. Measuring Unit	Choice: cm, Inch, and Pixel.

5. Editing Your Image

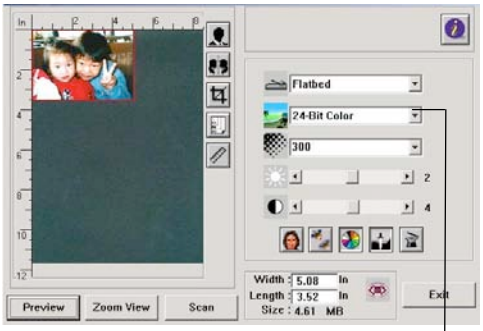
5.1 Using the Basic Features

5.1.1 Choosing Your Scan Method

1. Scan Method

Choice:

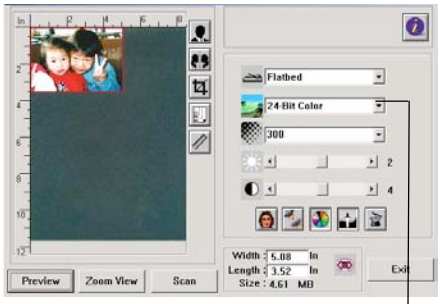
ADF/Multipage: Select this setting if you need to scan multi-page document from the automatic document feeder (ADF).



5.1.2 Selecting a Proper Image Type

1. Image Type

   Please see following table for a choice of an ideal image type.



Black **&** White	Choose B&W if your original contains only B&W text, pencil or ink sketch.
Halftone	Halftones are reproduction of image that gives the illusion gray. An example of halftone imaged would be the pictures you see in newspapers.
8-bit Gray	8-bit Gray images contain actual shades of gray.
8-bit Color	8-bit Color image provides 256 levels of color hues.
24-bit Color	Choose 24-bit Color if you wish to scan a color image.

Black & White

Halftone

Gray

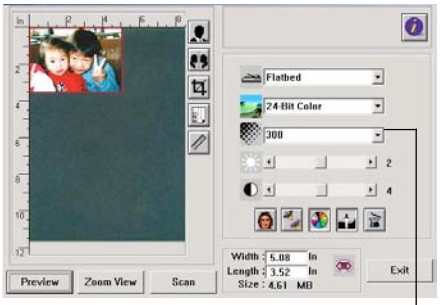
8-bit Color

24- bit Color

4.1.3 Determining a Proper Resolution

1. Resolution

   A proper resolution reproduces a clear image with good details. The resolution is measured by dots per inch (dpi).



Resolution: 50 dpi

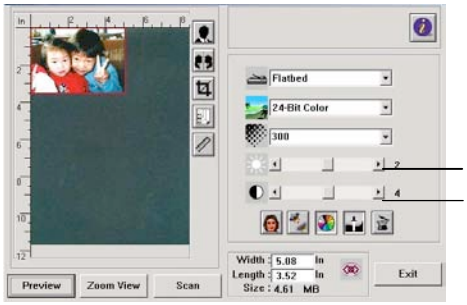
Resolution: 100 dpi

Note

For your information, an A4 size color image scanned at 300 dpi at True Color mode consumes approximately 25 MB of disk space. A higher resolution (usually means over 600 dpi) is only recommended when you need to scan a small area at True Color mode.

4.1.4 Adjusting the Brightness and Contrast

1. Brightness
   Adjusts the lightness or darkness of an image. The higher the value, the brighter the image.
2. Contrast
   Adjusts the range between the darkest and the lightest shades in the image. The higher the contrast, the bigger the different grayscale.



Decrease Brightness

Normal

Increase Brightness

Decrease Contrast

Normal

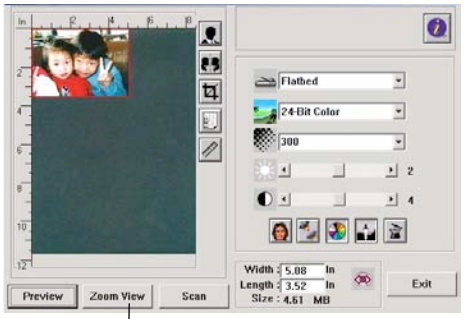
Increase Contrast

4.1.5 Enlarging Previewed Image

1. Zoom View

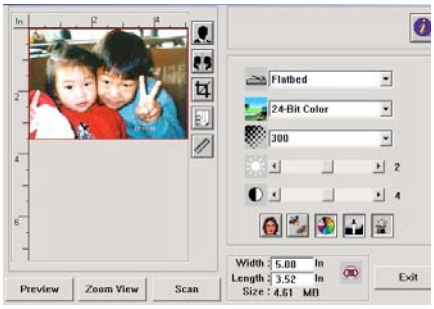
   Enlarge your previewed image to the max. of the preview window.

   Note this function only enlarging your preview image. This does not enlarge your real image.



1

Before Zoom

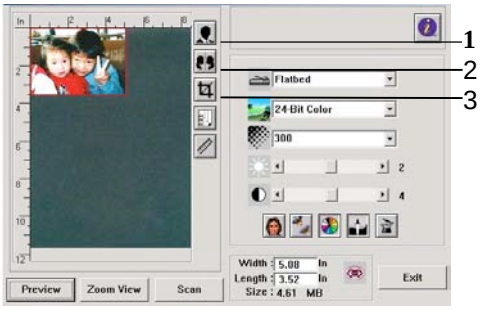


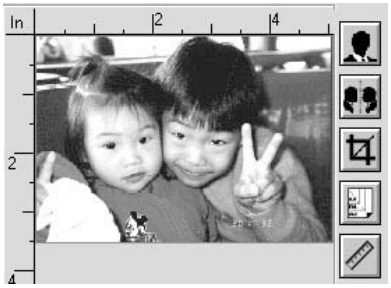
After Zoom

4.1.6 Inverting and Selecting Your Image

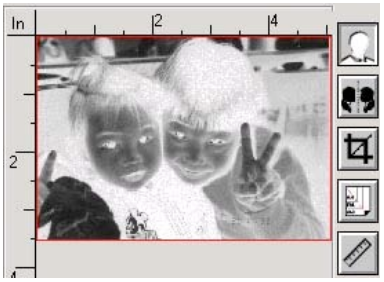
1. Invert

   The invert command reverses the brightness and the color in the image. For color images, each pixel will be changed into its complementary color at the command of Invert.





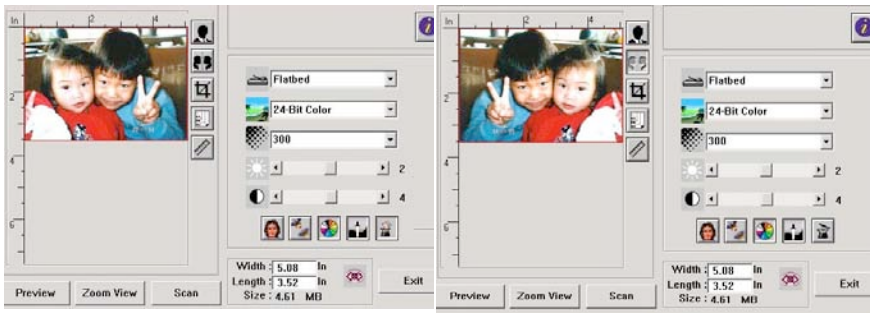
Before Invert



After Invert

2. Mirror Function

Reverse the right and left side of your image.



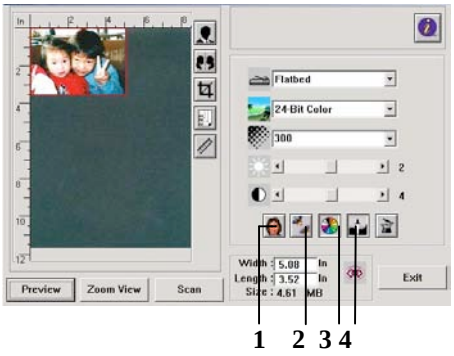
Before Mirror After Mirror

3. Auto Select Image

Automatically set the whole image as your scan area. (Or you may resize the area by "drag and drop" diagonally.)

4.1.7 Enhancing Your Image

1. Descreen
   Eliminates the *moire patterns** commonly found in printed matter.
2. Sharpen
   Sharpen the scanned image.



Before Descreen

After Descreen

Before Sharpen

After Sharpen

Moire pattern: An undesirable pattern in a color printing resulting from incorrect screen angle of overprinting halftone.

3. Color Adjustment

Adjusts the color quality of the image so that it comes close to the original. This function uses default parameters to adjust the image.

Normal

After Color Matching

4. Auto Level

Automatically adjusts the highlight and shadow areas of the scanned image to optimize your image.

Normal

After Auto Level

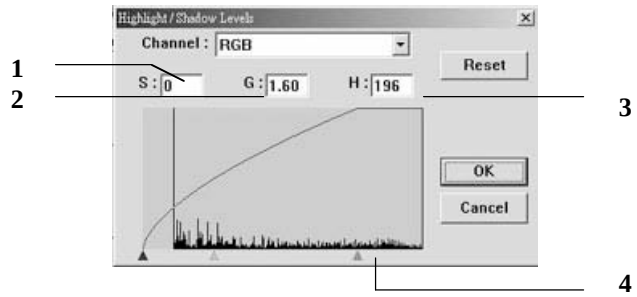
4.2 Using the Advanced Features

4.2.1 The Switch button

1. Click the button to pop up the advanced settings bar at the right side. The advanced settings include Highlight/Shadow, Hue/Saturation/Lightness, Curve, Color Balance, Color Drop-out.
2. The Advanced Settings bar

4.2.2 Adjusting Highlight/Shadow Levels

Highlight refers the lightest point in a scanned image while shadow refers the darkest point. Using Highlight and Shadow tool together allows you to extend the range of color and reveal more details in a gray or color image.



1. Shadow: The darkest point of an image.
2. Gamma: The midtones of the image.
3. Highlight: The lightest point of an image.
4. Pointer: Move the pointer to change the value.

When the value of gamma changes, the image changes accordingly.

Gamma Value: 1.0

Gamma Value: 1.4

Gamma Value: 2.0

When the value of highlight and shadow change, the image changes accordingly.

Highlight: 255/Shadow: 0(Normal)

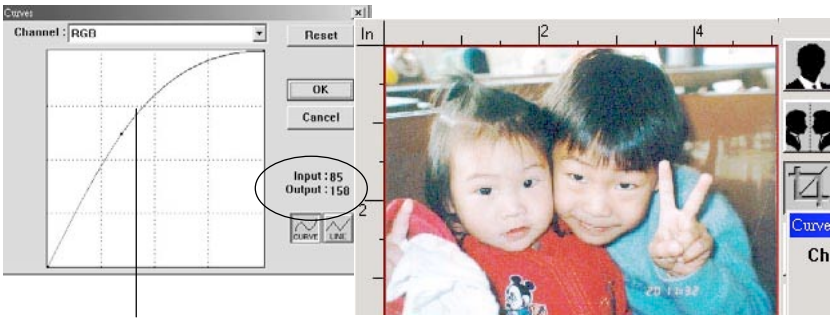
Highlight: 210/Shadow:10

Highlight: 200/Shadow:0

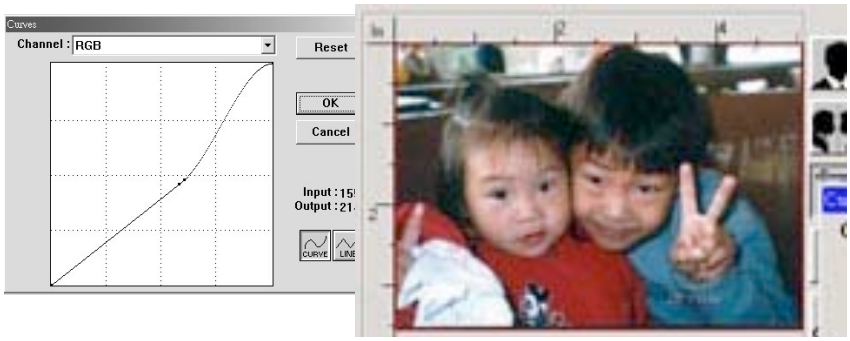
Highlight: 255/Shadow: 50

4.2.3 Adjusting the Brightness Curve

Adjusts the midtones of the image without dramatically altering then lightest and the darkest areas.

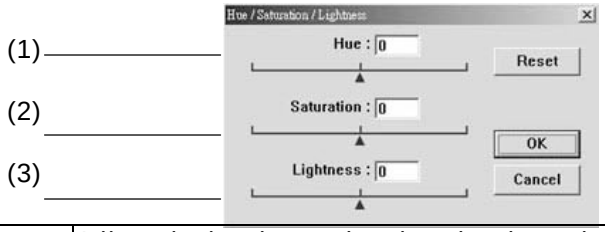


When the curve is moved up or down, the image turn brighter or darker.

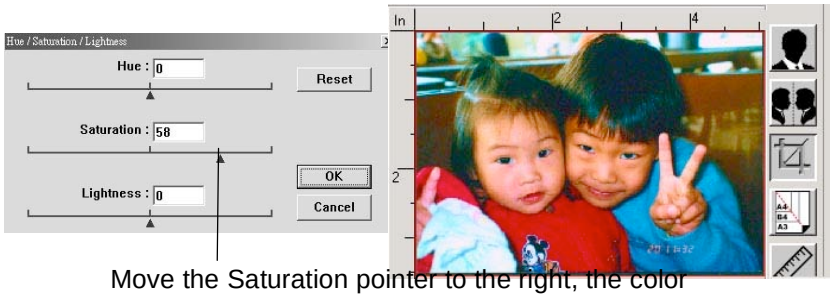


4.2.4 Changing Color Hue/Saturation/Lightness

Improve your image by changing the level of hue/saturation/lightness.



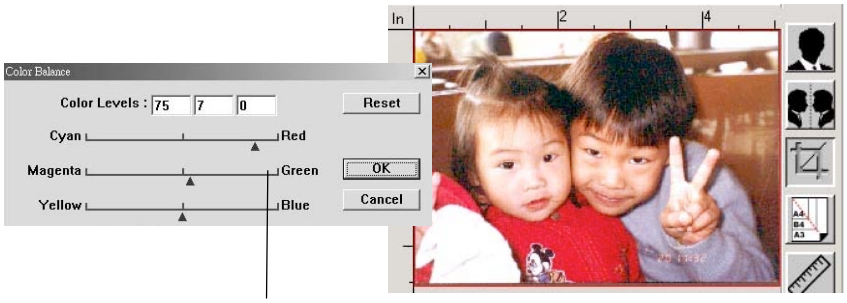
(1). Hue	Adjust the hue by moving the triangle to the right or left. (Note the level of intensity for the color will be changed simultaneously when the hue adjustment is made).
(2). Saturation	Move the triangle to the right to increase the saturation level or to the left to decrease the level. The level of saturation decides if the color is pale or rich.
(3). Lightness	Increase the lightness by moving the triangle to the right or to the left to decrease the lightness.



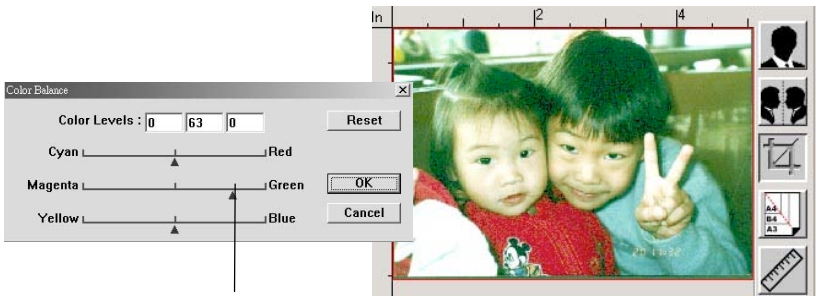
Move the Saturation pointer to the right, the color turns rich.

4.2.5 Using Color Balance

The Color Balance allows you to obtain an optimal image quality.



Move the pointer toward Red, the image turns into a reddish hue.

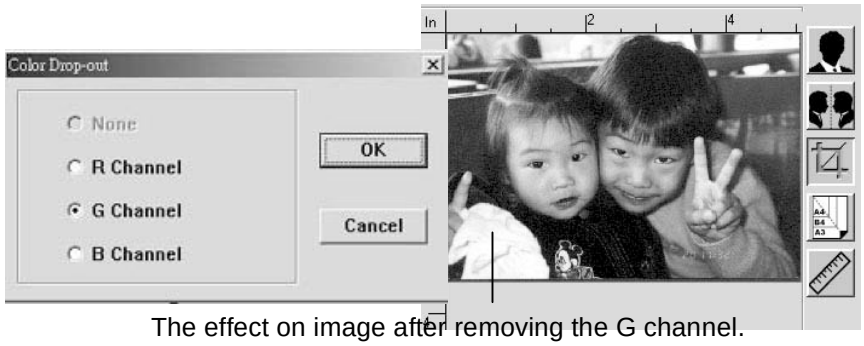


Move the pointer toward Green, the image turns into a greenish hue.

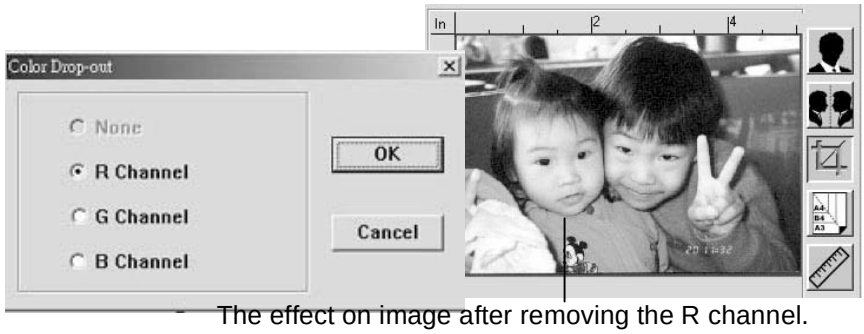
4.2.6 Color Drop-out

Click the button and a dialog box in below will be displayed. This dialog allows you to remove one of the R (Red), G (Green), or B (Blue) color channel. This function is particularly useful when you need to convert text using OCR software.

Note that this function supports only black & white and gray image. Therefore, be sure to choose any black & white or gray image type while applying this function.

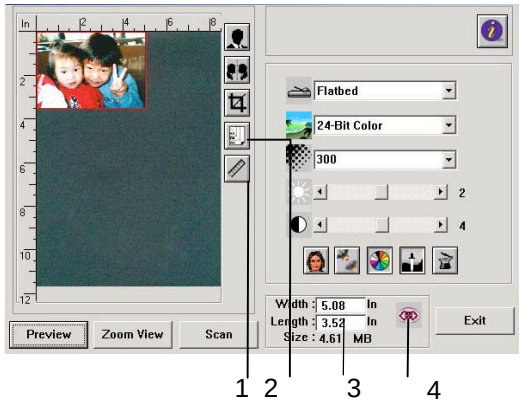


The effect on image after removing the G channel.



The effect on image after removing the R channel.

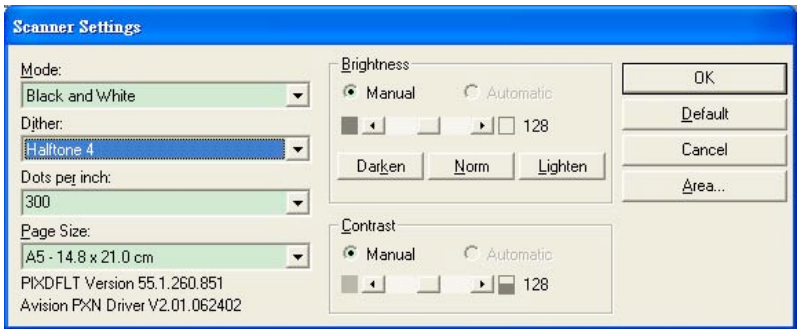
4.3 Using other Tools



1. Measuring Unit	A reminder of the measuring system in use. By clicking the button, you can change the measuring unit. Choice: Inch, cm, Pixel.
2. Paper Size	Provide frequently scan sizes. Choice: Card 4"x2.5", Photo 5"x3", Photo 6"x4", B5, A5, A4, Letter, and Scanner Maximum.
3. Image Size	Display image size for the scanned area.
4. Lock Image	Fix your output width and height.

6. ISIS Interface operation

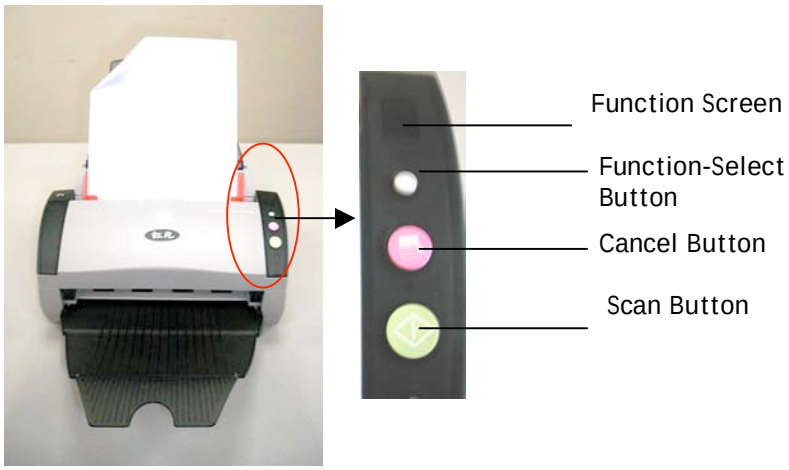
The ISIS driver operation method is similar to the TWAIN's.
Every function on the ISIS interface screen is briefly described as below:



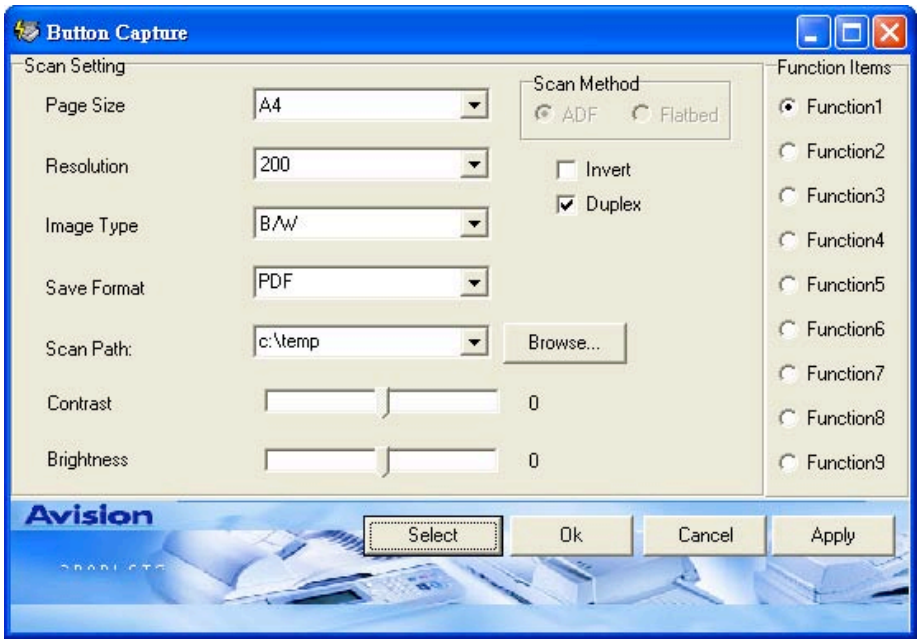
Mode: select one of scan modes, including b/w, gray, color options.
Dither: 5 halftone levels available, can be disabled.
Dots per inch: select your desired resolution.
Paper Size: select your desired paper size.
Brightness: adjust your scan image brightness or darkness.
Contrast: Adjust the range between the darkest and the lightest shades in the image.
Default: click to reset all settings.
Area: select your desired scan area or position.

7. How to Use Scanner Buttons

The following picture shows the 3 buttons and 1 function screen on the scanner.



After the scanner driver is successfully installed, the Button capture program should be also installed to your PC. The Button capture program provides a useful tool, by which you can customize the Scan button's function. On your Windows system screen, click Start > Programs > Scanner AV210 > Preferences to display the Button Capture dialog as shown in the following screenshot.



The Button Capture dialog above is designed to provide an interface for users to customize the Scan button function on the scanner. It includes a Scan setting area at the left, a Function Items area at the right, and a series of action buttons at the bottom.

All settings in the Scan setting area are very intuitive, so please refer to the Twain UI section in this manual. You can set up your desired scan property options in this area. The Scan Path setting is where you want your scanned image to be.

There are 9 Option buttons in the Function Items area, which are subsequently named Function1 to Function9. These function names all have a digit (1~9) suffix, which will be displayed in the function screen on the scanner. In other words, you can pre-define at most 9 different functions for the Scan button, and then select one of them from the function screen on the scanner.

The following steps show how to define the Scan button function:

1. Set up all preferred settings in the Scan setting area.
2. Select one of the 9 Option buttons in the Function Items area to represent all the settings you prefer in the step 1.
3. Click the Apply button, and then the OK button to finish defining this first Scan button function.

Now, repeat the above steps to subsequently define the rest Option buttons in the Function Items area if you want to define more than one Scan button function.

The following steps show how to use the Scan button through the Button Capture program:

1. By pressing the Function-Select button, select one of the digit numbers in the function screen, which corresponds to its pre-defined function name.
2. Press the Scan button on the scanner.
   (If you regret, press the Cancel button to stop the scan task.)
3. The scanner starts scanning with all the settings defined on this selected function name.

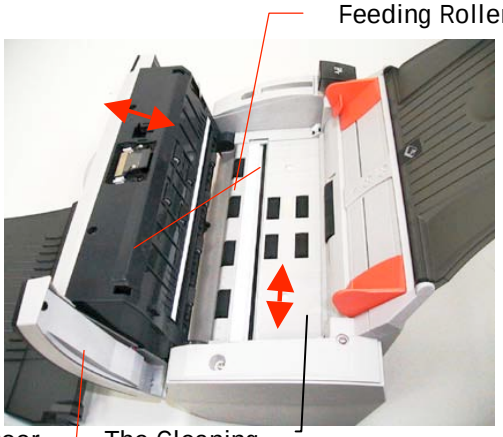
8. Maintenance

8.1 Cleaning the ADF

From time to time the pad assembly and feeding rollers may become contaminated with ink, toner particles or paper dust. In this case the scanner may not feed documents smoothly. If this occurs please follow the cleaning procedures to return your machine to its original state.

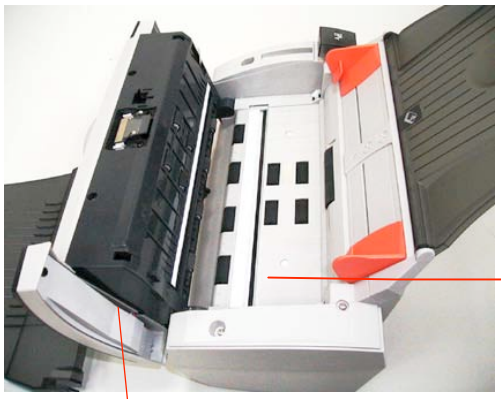
The Cleaning Procedures

1) Soak a cotton swab with some isopropyl alcohol. (95%).
2) Press the push button on the upper-left. Open the front door slightly to the left. Wipe the upper feeding roller by moving the swab from side to side. Rotate the roller forward with your finger and repeat the cleaning steps above until the entire roller is cleaned.
3) Wipe the pad in one direction from top to bottom or the other way around. Be careful not to damage the pick springs.
4) Close the scanner front door. Your scanner is now ready for use.



8.2 Cleaning the Calibration Area

As shown below, clean the calibration area (white glass) with an air-blower or a small brush to rid the board of dust or dirt. Please handle with care and dexterity.

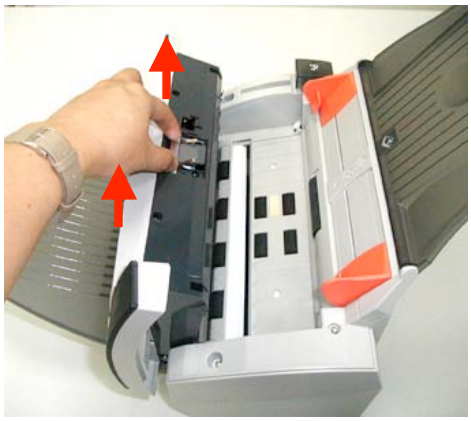


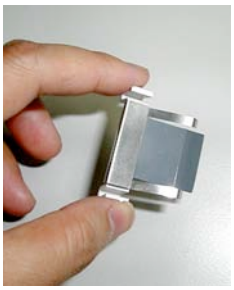
8.3 Replacing the Snap-in Pad Module

After scanning approximately 20,000 pages through the ADF, the pad may be worn out and you may experience problems with document feeding. In this case, it is highly recommended to replace the pad module with a new one. For ordering the pad module, please consult your nearest dealer and follow the procedure below to replace it.

Disassembling Procedure

1. Press the Paper jam clearing button on the upper-left corner.
2. Gently open the ADF Front cover to the left.
3. Press both arms of the ADF snap-in pad module inwardly with your fingers to pull out the ADF snap-in pad module.





Assembling Procedure

1. Take out the ADF pad module from the box.
2. Press both arms of the ADF snap-in pad module inwardly with your two fingers.
3. Place it into the holes until it snaps into place.

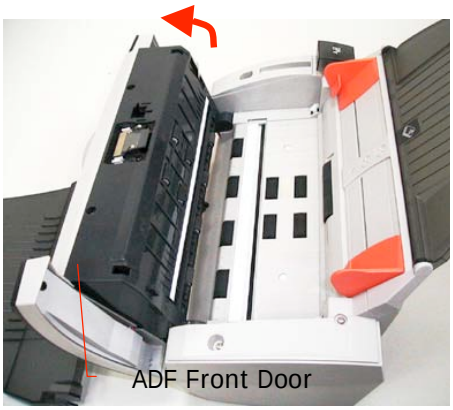
9. Troubleshooting

9.1 Clearing a Paper Jam

In the event of a paper jam, follow the procedures below to remove the paper:

1. Press the ADF Release Button on the left side. Gently open the Scanner Front Door to the left.
2. Carefully pull the paper out of the ADF unit.
3. Close the scanner front door. Your Scanner is now ready to use.

Push button



Original
Document

9.2 Questions and Answers

Question: Paper becomes jammed during scanning.

Answer: 1) Open the scanner front door.
2) Pull out the jammed paper carefully.
3) Close the scanner front door.

Question: More than one sheet of paper are fed into the scanner.

Answer: 1) Open the scanner front door.
2) Remove the multi-fed sheets of paper.
3) Close the scanner front door.
4) Flatten the corners and edges. Loosen the paper before putting it into the paper guide again.
5) Check the feeding roller condition. If necessary, follow the cleaning directions in section 5.1 and perform the cleaning.

Question: Paper becomes skewed in the scanner.

Answer: 1) Use the slide guide to keep the paper path straight.
2) Check the condition of the feeding roller. If necessary, follow the cleaning directions in Section 5.1 and perform the cleaning.

Question: Why is it my scanned image always comes out too dark?

Answer: 1) Modify the Gamma setting to 1.8 for your monitor and, when printing, set Gamma to 2.2 for your printer.
2) Use the Brightness setting of the TWAIN user interface to get a brighter image.

Question: Sometimes it seems the scanner does not detect paper?

Answer: The AV210 scanner paper sensor is located at the center of the paper guide. Please place the document you need to scan on the paper guide and use the slide guides to keep the paper path straight.

9.3 Technical Service

Before contact Ambir, please prepare the following information:

- Scanner serial & revision number (located on the bottom of the scanner);
- Hardware configuration (e.g., your host CPU type, RAM size, free disk space, display card, interface card);
- The name and version of your scanning software application;
- The version of your scanner driver.

Please call us at: 1 630 530 5400 ext 104

Headquarter

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Web Site: http://www.ambir.com

10. Specifications

All specifications are subject to change without notice.

Scanner Type:	Desktop sheet-fed
Optical Resolution:	600 dpi * 1200 dpi
Scanning Modes:	Black & White mode Halftone mode (64-step) Error Diffusion 16-bit gray scale 24-bit color
ADF Capacity:	Up to 50 pages
ADF Scan Speed:	20 pages per minute in simplex mode
Document Size:	Letter, legal, A4, B5, A5, business card
Max. Document Size:	8.5"x14" (ADF)
Min. Document Size:	3.5" x 2" (ADF)
Paper:	16 lbs. to 28 lbs.
Interface:	Hi-speed USB 2.0
Power Source:	24V, 2.0A
Power Consumption:	<30W
Dimensions: (WxHxD)	162 mm x 337 mm x 167 mm
Weight:	3.6 kgs/7.8 lbs